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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Docket Number (Optional)

SOL-183

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on April 25, 2008Signature Carol PrenticeTyped or printed name Carol Prentice

Application Number

10/763,288

Filed

01/26/2004

First Named Inventor

Petrovic

Art Unit

2137

Examiner

P. Callahan

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)

☒ attorney or agent of record. 37,886  
Registration number

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Registration number if acting under 37 CFR 1.34 \_\_\_\_\_

  
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April 25, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

☒ \*Total of 1 forms are submitted.

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P A T E N T

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
)  
Petrovic ) Examiner: P. Callahan  
)  
Application No.: 10/763,288 ) Art Unit: 2137  
)  
Filed: January 26, 2004 )

For: **APPARATUS AND METHOD FOR EMBEDDING AND EXTRACTING  
INFORMATION IN ANALOG SIGNALS USING DISTRIBUTED SIGNAL  
FEATURES AND REPLICA MODULATION**

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By:

*Carol Prentice*  
Carol Prentice

**SUMMARY OF ARGUMENTS**  
**FOR PRE-APPEAL BRIEF REVIEW CONFERENCE**

Dear Sir:

This Summary of Arguments is being filed simultaneously with a Notice of Appeal and a Pre-Appeal Brief Request for Review in connection with the final Office Action mailed on December 31, 2007 and the Advisory Action mailed on March 21, 2008. A petition and fee for a one-month extension of time is also being submitted simultaneously herewith.

Summary

As a preliminary matter, Applicant would like to thank the Examiner for the courteous telephone interview held on April 16, 2008, the details of which are set forth below.

Claims 1-6 and 8-26 are pending. Claims 8-26 are allowed.

Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tewfik (US 6,282,299) in view of Leighton (US 5,644,018).

Applicant respectfully traverses these rejections in view of the following comments.

Summary of April 16, 2008 Telephone Interview

In response to the Advisory Action, Applicant's undersigned counsel conducted a telephone interview with the Examiner on April 16, 2008. In the final Office Action, the Examiner equated the baseline watermark of Leighton with Applicant's auxiliary information carrier, and indicated "the method of Leighton still falls within a reasonably broad interpretation of the claim language, especially when one considers that the original 'baseline watermark' of Leighton is derived from the digital data to be watermarked (col. 3 lines 35-40)" (final Office Action, page 2). As discussed with the Examiner, Applicant respectfully disagrees with the Examiner's application of Leighton to Applicant's claim 1. In particular, Applicant's undersigned counsel pointed out to the Examiner that, in Leighton, the baseline watermark is created at the embedding step (Col. 3, lines 28-31). While the examiner is correct in that this baseline watermark of Leighton is derived from the original data to be watermarked, this baseline watermark is stored and later retrieved from storage when the watermark is to be extracted (Col. 3, lines 58-60). Applicant's undersigned counsel indicated that, in contrast to retrieving a baseline watermark from storage for use in deriving the watermark as set forth in Leighton, Applicant's claim 1 specifies that the auxiliary information carrier is detected from the received encoded host signal. However, the Examiner maintained the position that Leighton met the limitations of claim 1, since the baseline watermark in Leighton is derived from the data to be watermarked.

In the final Office Action, the Examiner indicates that Leighton teaches Applicant's claimed step of "correlating the encoded host signal with said auxiliary information carrier to obtain a correlation value," since Leighton discloses "a correlation value is obtained by taking an inner product between a derived watermark and a baseline watermark (final Office Action, pages 2-3). Applicant's undersigned counsel pointed out that Leighton discloses computing derived values  $x_1'$ ,  $x_2'$ ,  $\dots$   $x_n'$  using the same algorithm used to compute the baseline watermark, retrieving the baseline watermark from storage, and then subtracting out  $x_1'$ ,  $x_2'$ ,  $\dots$   $x_n'$  from the baseline watermark to compute a derived watermark. A correlation value is then calculated between the derived watermark and a stored n-length watermark vector (created at the step 16 of the embedding process), which correlation value can then be used to determine the presence of a watermark (Leighton, Col. 3, lines 52-67). Applicant's counsel pointed out that this process of

Leighton's was substantially different than Applicant's claimed process of correlating the encoded host signal with the auxiliary information carrier to obtain a correlation value and detecting the presence of the auxiliary information symbols from the correlation value. In Leighton, the correlation value is derived from the stored n-length watermark vector and the derived watermark. In contrast, with Applicant's claim 1, the correlation value establishes a correlation between the encoded host signal and the auxiliary information carrier detected from the received encoded host signal. The Examiner maintained his position that the correlation value of Leighton was equivalent to that claimed by Applicant.

Lastly, Applicant's counsel argued that Tewfik disclosed the concept of redundant watermark embedding, which is far removed from the offset embedding technique used by Applicant and set forth in claim 1. As discussed with the Examiner, with redundant embedding as disclosed by Tewfik, each watermark is independently recoverable. In contrast, offset embedding (where the auxiliary information carrier is comprised of a plurality of signal components having varying amount of delay or offset from each other), requires multiple embedding instances in order to retrieve the complete watermark. The Examiner countered by indicating that such a limitation could be met by any noise signal, and that Tewfik disclosed the use of a noise signal in connection with watermark embedding.

#### Discussion of 35 U.S.C. § 103(a) Rejections

Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tewfik in view of Leighton.

As discussed above in connection with the summary of the telephone interview, the baseline watermark of Leighton is not equivalent to Applicant's claimed auxiliary information carrier, and is not obtained in the same manner. Applicant's claimed auxiliary information carrier is comprised of a plurality of signal components having varying amount of delay or offset from each other, and is detected from the received encoded host content. In contrast, with Leighton, the baseline watermark is created at the embedding step and then retrieved from storage for watermark detection. In addition, as indicated by the Examiner, the baseline watermark in Leighton is derived from the data to be watermarked. Thus, the Examiner apparently assumes that

the data to be watermarked is equivalent to Applicant's received encoded host signal. There is no disclosure or suggestion in Leighton that the baseline watermark is derived from an encoded signal. In fact, Leighton indicates that the baseline watermark is created by first digitizing the data to be watermarked and using a portion of this digitized data to create the baseline watermark (Col. 3, lines 35-37). In Leighton, once the watermark generation process is complete, the data is returned to its original form (image, video, audio, etc.) (Col. 3, lines 49-50).

Further, the watermark detection method of Leighton requires prior identification of the work itself. In Leighton, different works would result in the retrieval of different baseline watermarks (column 3, lines 30 to 44). The objective of Leighton is to distinguish different copies of the same work (Column 3, line 16-19 and 55-60). One skilled in the art would appreciate that Leighton cannot be used to identify a work itself and cannot be used for content copyright protection on devices that do not have means to identify the work and that do not have access to a database with stored baseline watermark vectors. In contrast, with Applicant's claimed invention, watermarks can be extracted without prior identification of the work itself, which is generally known in the watermarking field as "blind watermark detection". With Applicant's claimed invention, blind watermark detection is achieved by correlating an encoded host signal with the auxiliary information carrier, which auxiliary information carrier is detected from the received encoded host signal. With Applicant's claim 1, the whole process of watermark extraction is based on processing the received signal, with no additional information about the original work identity or the need for parameters of different works to be saved in a database (as is the case with the baseline watermark of Leighton). In addition, the method of Applicant's claim 1 can be, and is, used for work identification and for copyright protection on devices that do not have means to identify the work or access a database with data that distinguishes different works. Thus, the present invention as set forth in claim 1 provides features and advantages not available with the methods of Leighton.

Further, as discussed above, in Leighton, the correlation value is derived from the stored n-length watermark vector and the derived watermark. In contrast, with Applicant's claim 1, the correlation value establishes a correlation between the encoded host signal and the auxiliary information carrier detected from the received encoded host signal.

Only with hindsight impermissibly gained from Applicant's disclosure could one of ordinary skill in the art have arrived at the conclusions reached by the Examiner from the disclosure of Leighton.

Finally, there is simply no disclosure or suggestion in Tewfik of an auxiliary information carrier comprised of a plurality of signal components having varying amount of delay or offset from each other, as set forth in Applicant's claim 1. The Examiner's argument that such a limitation could be met by any noise signal, and that Tewfik disclosed the use of a noise signal in connection with watermark embedding, is unsupported and based on hindsight.

Applicant respectfully submits that the present invention would not have been obvious to one skilled in the art in view of the combination of Tewfik and Leighton, or any of the other prior art of record.

Further remarks regarding the asserted relationship between Applicant's claims and the prior art are not deemed necessary, in view of the foregoing discussion.

Withdrawal of the rejections under 35 U.S.C. § 103(a) is therefore respectfully requested.

#### Conclusion

Reconsideration and allowance of this application at a Pre-Appeal Brief Review conference is respectfully requested. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,



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Date: April 25, 2008

**ATTORNEY DOCKET NO.: SOL-183**